

REMARKS

Upon entry of the present amendment, claims 8-9, 12-13 and 16-31 will remain pending in the above-identified application with claims 8-9, 12-13 and 16-23 standing ready for further action on the merits, while claims 24-31 stand withdrawn from consideration based upon a prior Restriction Requirement.

The amendments made herein to the claims do not incorporate new matter into the application as originally filed, since they find support at page 3, lines 13-18 of the specification as originally filed.

***Restriction Requirement***

The Examiner has previously required restriction between claims 1-23 (drawn to a catalyst) and claims 24-31 (drawn to a process for using a catalyst). Applicants have previously responded to the Restriction Requirement with traverse, and the Examiner has made the same final. Nonetheless, Applicants still maintain their traversal of the outstanding Restriction Requirement, since an Examination of each of pending claims 1-31 would produce no undue burden on the Examiner. Accordingly, the Examiner is respectfully requested to consider each of pending claims 8-9, 12-13 and 16-31 at present, and/or he is respectfully

requested to rejoin the non-elected claims 24-31 upon indication of allowable subject matter within the elected group.

***Claim Rejections Under 35 USC § 112***

Claims 1-23 have been rejected under 35 USC § 112, second paragraph. Reconsideration and withdrawal of this rejection is requested based upon the following considerations.

Regarding the term " $\mu$ -oxo type compounds" that occurs in claims 8-9, this language it is not indefinite and at the same time finds good support in Applicants' specification at page 22, lines 21-22, and at page 72, line 12 to page 75, line 9, wherein a large listing of  $\mu$ -oxo type compounds is provided.

In the instant amendment, claims 8-9 have been amended and positively recite therein as follows:

...(B) a metal compound selected from the group consisting of compounds represented by the general formula [4]:  

$$L_a M^1 X_b \quad [4]$$

wherein  $M^1$  is a metal atom of the Group III to the Group XIII or Lanthanide series; L is a group having cyclopentadienyl type anion skeleton or a group containing a hetero atom, a plurality of L's may be linked directly, or through a residual group containing a carbon atom, a silicon atom, a nitrogen atom, an oxygen atom, a sulfur atom or a phosphorous atom; X is a halogen atom or a hydrocarbon group; "a" represents a number satisfying  $0 < a \leq 8$ ; and "b" represents a number satisfying  $0 < b \leq 8$ , and  $\mu$ -oxo type compounds thereof.... (emphasis added).

Namely, in claims 8-9 as instantly amended, there is recited a "(B) a metal compound, which is a compound selected from the group consisting of compounds represented by the general formula [4] ... and  $\mu$ -oxo type compounds thereof". In this respect, for the Examiner's convenience, it is again noted that the term " $\mu$ -oxo type compound" is a generic name of compounds in which two  $M^1$ 's in  $L_a M^1 X_b$  (compound(B)) of the two are mutually bridged through one oxygen atom.

For example,  $\mu$ -oxo type compounds are disclosed in US Patent 6,242,622 B1 (a copy of which was enclosed with the Applicants response of November 4, 2002), and as mentioned above concrete examples of  $\mu$ -oxo type compounds are described in the present specification at pages 72-75.

As such, the term " $\mu$ -oxo type compound" as used in the present specification is fully acceptable under the provisions of 35 USC § 112, second paragraph.

#### ***Claim Rejections Under 35 USC § 102***

Claims 8-9 have been rejected under 35 USC § 102(b) as being anticipated by EP 0 683 184 A1 (EP '184). Reconsideration and withdrawal of each of the rejection is respectfully requested based upon the following considerations.

As indicated above, the Applicants have amended claims 8 and 9. In the amended claims, the metal compound (A) of the present

invention does not contain an element of the Group XIII, e.g. boron, aluminum, etc.

On the other hand, in EP '184 all compounds (component (B-1)) having porphyrin or phthalocyanine as a ligand are exemplified as borate compounds - among compounds containing an element of the Group XIII. In other words, in the EP '184 reference, no compound having porphyrin or phthalocyanine other than borate compounds, is disclosed therein.

Further, it is submitted that because in claims 8-9 of the instant invention, the phthalocyanine compounds do not contain borate (or an element of Group XIII), it follows that EP '184 does not provide any motivation for arriving at the instant invention of claims 8-9, because it is essential in the teachings and disclosure of EP '184 to use compounds containing an element of the Group XIII, such as a borate compound.

Based on such considerations, it is clear that the cited EP '184 reference is incapable of either anticipating or rendering obvious instant claims 8-9.

***Claim Rejections Under 35 USC § 103***

Claims 8-9, 12-13, and 16-23 have been rejected under 35 USC § 103(a) as being unpatentable over EP 0 683 184 A1 (EP '184) in view of Manassen et al. (Journal of Catalysts, Vol. 33, pages 133-

137 (1974)). Reconsideration and withdrawal of this rejection is respectfully requested based upon the following considerations.

Manassen et al. discloses tetraphenylporphyrin and phthalocyanine complexes including fluorinated ones. However, these complexes are used as an oxidative dehydrogenation catalyst of 1,4-cyclohexadiene, and each of the complexes is used alone as the catalyst.

On the other hand, the catalyst disclosed in EP '184 is a catalyst for addition polymerization, further, it is essential in the catalyst mentioned in EP '184 to combine (A) a transition metal compound with (B) a compound capable of forming an anionic complex from the transition metal compound or its derivative (see page 18, lines 7 to 9). Therefore, the catalysts of Manassen et al. and EP '184 are extremely different from each other.

Accordingly, there is no motivation provided in the cited art, whether considered singularly or in combination for replacing one component of the combined catalyst for addition polymerization of EP '184 with the Manassen et al. catalyst, which latter catalyst is disclosed as only being used alone for oxidative dehydrogenation, which is a use quite different from the use taught for the combined catalyst of EP '184.

Moreover, the tetraphenylporphyrin and phthalocyanine compounds in EP '184 are exemplified as a compound capable of forming an anionic complex from the transition metal compound (B-

1), particularly borate compounds (see page 25, line 4 to page 26, line 51).

On the other hand, Manassen et al. is silent regarding any use of borates. Based on this silence about borates, there also lacks any motivation in the combined cited art to replace the borate compounds of a tetraphenylporphyrin or phthalocyanine exemplified as the component (B-1) of the catalyst for addition polymerization that is disclosed in EP '184, with the tetraphenylporphyrin or phthalocyanine exemplified as the catalyst for oxidative dehydrogenation used alone for oxidative dehydrogenation that is disclosed in Manassen et al.

Based on such considerations, it follows that claims 8, 9, 12, 13 and 16-23 are not rendered obvious from the combined disclosures of EP 0 683 184 A1 in view of Manassen et al.

***Provisional Request for Interview***

Should the present response not place this application in condition for allowance, the Examiner is respectfully requested to contact the undersigned so that a personal interview may be scheduled at the Examiner's earliest convenience in order to expedite the present application's prosecution towards allowance.

**CONCLUSION**

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance

clearly indicating that each of Applicants' pending claims under consideration (claims 8-9, 12-13 and 16-23) are allowed and patentable under the provisions of Title 35 of the United States Code. Further, the Examiner is also requested to rejoin non-elected claims 24-31 and to issue a Notice of Allowance clearly indicating that each of these claims are also patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

(Rev. 02/20/02)



VERSION WITH MARKINGS TO SHOW CHANGES MADE

The claims are being amended as follows:

8. (Twice Amended) A catalyst for addition polymerization obtained by contacting:

(A) a compound containing an atom of the Group II to the Group XII or Lanthanide series of the Periodic Table of the Elements and containing no element of Group XIII, in which the lowest energy level of unoccupied molecular orbital having the valence p-type atomic orbital of the atom of the Group II to the Group XII or Lanthanide series as a main component wherein the coefficient represented by a linear combination is 0.4 or more is calculated to be 0.008 atomic unit (Hartree) or less by the calculation of density functional method (B3LYP/3-21G level) and wherein the compound (A) is a porphyrin or phthalocyanine complex in which a metal atom of the Group II to the Group XII or Lanthanide series is coordinated, with

(B) a metal compound [(B)] selected from the group consisting of compounds represented by the general formula [4]:



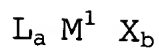
wherein  $M^1$  is a metal atom of the Group III to the Group XIII or Lanthanide series; L is a group having cyclopentadienyl type anion skeleton or a group containing a hetero atom, a plurality of L's

may be linked directly, or through a residual group containing a carbon atom, a silicon atom, a nitrogen atom, an oxygen atom, a sulfur atom or a phosphorous atom; X is a halogen atom or a hydrocarbon group; "a" represents a number satisfying  $0 < a \leq 8$ ; and "b" represents a number satisfying  $0 < b \leq 8$ , and  $\mu$ -oxo type compounds thereof.

9. (Twice Amended) A catalyst for addition polymerization obtained by contacting:

(A) a compound containing an atom of the Group II to the Group XII or Lanthanide series of the Periodic Table of the Elements and containing no element of the Group XIII, in which the lowest energy level of unoccupied molecular orbital having the valence p-type atomic orbital of the atom of the Group II to the Group XII or Lanthanide series as a main component wherein the coefficient represented by a linear combination is 0.4 or more is calculated to be 0.008 atomic unit (Hartree) or less by the calculation of density functional method (B3LYP/3-21G level) and wherein the compound (A) is a porphyrin or phthalocyanine complex in which a metal atom of the Group II to the Group XII or Lanthanide series is coordinated, with

(B) a metal compound [(B)] selected from the group consisting of compounds represented by the general formula [4]:



[4]

wherein  $M^1$  is a metal atom of the Group III to the Group XIII or Lanthanide series; L is a group having cyclopentadienyl type anion skeleton or a group containing a hetero atom, a plurality of L's may be linked directly, or through a residual group containing a carbon atom, a silicon atom, a nitrogen atom, an oxygen atom, a sulfur atom or a phosphorous atom; X is a halogen atom or a hydrocarbon group; "a" represents a number satisfying  $0 < a \leq 8$ ; and "b" represents a number satisfying  $0 < b \leq 8$  [;] and  $\mu$ -oxo type compounds thereof, and an organoaluminum compound (C).